

Finally, Wallace is correct that broader socioeconomic changes can have a determining effect on tuberculosis morbidity. Cases increased dramatically during the Industrial Revolution and then decreased steadily, even before the advent of antituberculosis agents.² Nevertheless, effective tuberculosis control programs can reduce disease incidence much more quickly than socioeconomic improvement.³ As I noted previously, "as [tuberculosis] once again begins to decline in the United States and leaves the front pages, our challenge will be to persevere. We must expand effective outreach programs . . . provide services to underserved populations . . . target services . . . conduct the epidemiologic investigations . . . and work to improve the social and economic environment that provides the substrate for the tuberculosis epidemic in the United States and abroad."⁴ □

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References

1. Wallace D. Lady beetles and public health research: geographic and population scales. *Am J Public Health*. 1995;85:735-736. Letter.
2. Dubos R, Dubos J. *The White Plague: Tuberculosis, Man and Society*. Boston, Mass: Little, Brown and Company; 1952.
3. Comstock GW, Ferebee Woolpert S. Preventive treatment of untreated, nonactive tuberculosis in an Eskimo population. *Arch Environ Health*. 1972;25:333-337.
4. Frieden TR. Tuberculosis control and social change. *Am J Public Health*. 1994;84:1721-1723. Editorial.

A Call for the Destruction of Smallpox Virus Stores

The destruction of smallpox virus stores in the United States and Russia, slated for June 1995, has been delayed until at least spring 1996 by the World Health Organization (WHO).¹ Since the eradication of smallpox in 1977, and particularly after the cloning of the causative virus in the early 1980s, numerous scientific organizations (including three different ad hoc expert committees assembled by the WHO) have called for its destruction.^{1,2}

The persistence of stocks of this deadly plague, which caused enormous suffering and death throughout history, holds the world hostage to the possibility

of accidental or deliberate release.² Because much of the world's population is not vaccinated, substantial morbidity and mortality could ensue, along with the need for rapid, widespread vaccination. This in turn would expose people, especially immunosuppressed individuals, to vaccine-related side effects including brain damage and the risk of vaccinia disease.³ More than likely, developed nations would vaccinate their own citizens first, leaving the Third World to bear the brunt of a new epidemic. The social and economic costs of such a release would be enormous; the costs of maintaining stores of the virus are not inconsequential, either. Moreover, maintaining viral stores is not consistent with the aims of the Biological and Toxic Weapons Convention of 1972.⁴

Those arguing for maintaining smallpox viral stores think that some scientists may desire to investigate further "this extraordinary paradigm of host-virus interactions," including the development of animal models of infection.⁴ They also state that smallpox virus should be available in case monkeypox (a related animal virus) mutates and causes a human epidemic, or in case small amounts of smallpox virus are accidentally released from excavated, fossilized, permafrosted human remains or are purposely disseminated by terrorists from secretly held vials.⁴

However, no research has been done on whole smallpox virus for 15 years, and the overwhelming majority of scientists agree that further research is unnecessary.⁴ The organism's genome has been sequenced, and this information could be used in confirming any possible future infections. Furthermore, adequate stocks of vaccinia virus (smallpox vaccine) will always be maintained at the Centers for Disease Control and Prevention (CDC) to prevent transmission of any possible future smallpox infections.²

At a time when tropical rain forest area is decreasing at a rate of 1.8% per year, contributing to the loss of 4000 to 6000 species per year (approximately 10 000 times the naturally occurring rate of extinction),⁵ the dangerous and costly preservation of an organism with the potential to cause great harm (and to undo one of the major triumphs of public health) illustrates mankind's distorted priorities and represents a tragic irony. Physicians and others should contact WHO to lobby for smallpox destruction and focus their efforts on preserving biodiversity (or, among other reasons, the health, environmental, and economic ben-

efits that would accrue to our species as a result.⁶ □

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References

1. Marwick C. Smallpox virus destruction delayed yet again. *JAMA*. 1995;273:446.
2. Mahy BWJ, Almond JW, Berns KI, et al. The remaining stocks of smallpox virus should be destroyed. *Science*. 1993;262:1223.
3. Johnston K. Call for destruction of smallpox virus. *Nature*. 1987;327:179.
4. Joklik WK, Moss B, Fields BN, Bishop DHL, Sandakhchiev LS. Why smallpox virus stocks should not be destroyed. *Science*. 1993;262:1225-1226.
5. Wilson EO. Threats to biodiversity. *Sci Am*. 1989;261(3):108-116.
6. Shapiro RL. The effects of tropical deforestation on human health. *Physicians Soc Respons Q*. 1993;3:126-135.

The Implications of CDC's Research on Organizational Downsizing

The Centers for Disease Control and Prevention (CDC) recently placed a notice in the *Federal Register* (June 16, 1995, p. 31 724) of a grant to perform research on ways to minimize stress associated with downsizing and reorganization: "study organizational downsizing/reorganization and propose interventions to reduce negative health and performance consequences among employees." The notice further stated that "outcome measures can include measures of perceived stress, health consequences to downsizing of those employees who retain their jobs, employee commitment and involvement, and organizational culture/climate." This research appears aimed at easing the lot of downsizing companies by essentially tranquilizing the remaining workers for high productivity.

The notice requires that what is learned in the pilot project on the nuclear defense industry be transferred to other industries. The context of nuclear defense industry downsizing (i.e., the end of the Cold War) bears no resemblance to that of consumer industry downsizing. Additionally, as those of us who have counseled nuclear weapons professionals can attest, the individual psychological and spiritual structure and the group culture differ greatly between industries of mass